AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An interpolation frame generation device for generating an interpolation frame for interpolating image frames that are obtained by decoding a coded image signal that is coded by motion compensation, the device comprising:

a motion compensation vector acquisition unit operable to acquire a motion compensation vector of a coded block that forms the coded image signal by decoding the coded image signal; and

an interpolation frame generation unit operable to generate the interpolation frame in accordance with at least a motion vector of an image block that forms an image frame by using the motion compensation vector of the coded block as the motion vector of the image block, wherein the interpolation frame generation unit is operable to generate the interpolation frame for an image block that is not included in one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally further from the interpolation frame than the one image frame.

2. (Currently Amended) An interpolation frame generation device for generating an interpolation frame for interpolating image frames that are obtained by decoding a coded image signal that is coded by motion compensation, the device comprising:

a motion compensation vector acquisition unit operable to acquire motion compensation vectors of coded blocks that form the coded image signal by decoding the coded image signal;

a motion vector detection unit operable to detect at least a motion vector between a base frame and a reference frame, ~~the unit detecting the~~and operable to detect the motion vector of an image block forming the base frame in ~~a certain~~an area of the reference frame that is determined in accordance with the motion compensation vectors; and

an interpolation frame generation unit operable to generate the interpolation frame in accordance with the detected motion vector, wherein the interpolation frame generation unit is operable to generate the interpolation frame for an image block that is not included in one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally further from the interpolation

frame than the one image frame.

3. (Currently Amended) An interpolation frame generation device for generating an interpolation frame for interpolating image frames that are obtained by decoding a coded image signal that is coded by motion compensation, the device comprising:

an image signal information acquisition unit operable to acquire image signal information of the coded image signal;

a motion vector detection unit operable to partially select at least an image block among the entire image blocks that form a base frame and to detect a motion vector of the partially selected image block between the base frame and a reference frame; and

an interpolation frame generation unit operable to generate the interpolation frame in accordance with the image signal information and the motion vector, wherein the interpolation frame generation unit is operable to generate the interpolation frame for an image block that is not included in one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally further from the interpolation frame than the one image frame.

4. (Withdrawn - Currently Amended) The interpolation frame generation device according to claim 3, wherein

the image signal information includes a motion compensation vector or a coding mode of a coded block that ~~form~~ forms the coded image signal, and

the partially selected image block is an image block that is determined to be stationary from the image signal information or an image block that is decided to have a movement having low correlation with ~~the~~ adjacent image blocks from the image signal information.

5. (Currently Amended) The interpolation frame generation device according to claim 3 ~~or~~ 4, wherein

the image signal information includes a coding mode of a coded block that forms the coded image signal, and

the partially selected image block is an intra block.

6. (Withdrawn – Currently Amended) An interpolation frame generation device for generating an interpolation frame for interpolating image frames, the device comprising:

a movement associated information acquisition unit operable to acquire movement associated information about movements of image blocks that form an image frame;

an interpolation vector derivation unit operable to derive a global motion vector for generating an interpolation frame in accordance with the movement associated information; and

an interpolation frame generation unit operable to generate the interpolation frame in accordance with the global motion vector.

7. (Withdrawn – Currently Amended) The interpolation frame generation device according to claim 6, wherein

the global motion vector is derived from movement associated information of image blocks partially selected from ~~all~~ a total of the image blocks.

8. (Withdrawn – Currently Amended) The interpolation frame generation device according to claim 6, wherein:

the movement associated information is motion compensation vectors of coded blocks that form a coded image signal for decoding the image frames; and

the interpolation frame generation unit ~~generates~~ is operable to generate the interpolation frame by utilizing the global motion vector derived for an image frame that is located either before or after an intra coded image frame in ~~the~~ a display order.

9. (Withdrawn – Currently Amended) An interpolation frame generation device for generating an interpolation frame for interpolating image frames, the device comprising:

a movement associated information acquisition unit operable to acquire movement associated information about movements of image blocks that form an image frame;

an image frame decision unit operable to decide whether or not the image frame is adequate for generating the interpolation frame; and

an interpolation frame generation unit operable to generate the interpolation frame in

accordance with the movement associated information by switching methods of generating the interpolation frame in accordance with the decision of the image frame decision unit.

10. (Withdrawn – Currently Amended) The interpolation frame generation device according to claim 9, wherein

the interpolation frame generation unit ~~can~~ is operable to use at least a portion of image frames located before and/or after the interpolation frame in ~~the~~ a display order as the interpolation frame when ~~the~~ a decision of the image frame decision unit is negative.

11. (Withdrawn – Currently Amended) The interpolation frame generation device according to claim 9, further comprising

an interpolation vector derivation unit operable to derive a global motion vector for generating ~~an~~ the interpolation frame in accordance with the movement associated information, wherein

the interpolation frame generation unit ~~can~~ is operable to generate the interpolation frame in accordance with the global motion vector when ~~the~~ a decision of the image frame decision unit is negative.

12. (Withdrawn – Currently Amended) The interpolation frame generation device according to claim 9, wherein

the interpolation frame generation unit ~~does not~~is not operable to generate the interpolation frame when ~~the~~ a decision of the image frame decision unit is negative.

13. (Currently Amended) An interpolation frame generation device for generating an interpolation frame for interpolating image frames, the device comprising:

a generation process ability decision unit operable to decide generation process ability for generating the interpolation frame; and

an interpolation frame generation unit operable to generate the interpolation frame in accordance with a decision of the generation process ability decision unit, wherein the interpolation frame generation unit is operable to generate the interpolation frame for an image

block that is not included in one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally further from the interpolation frame than the one image frame.

14. (Currently Amended) The interpolation frame generation device according to claim 13, wherein

the interpolation frame generation unit ~~changes~~ is operable to change a ~~the~~ number of interpolation frames in accordance with a decision of the generation process ability decision unit.

15. (Currently Amended) The interpolation frame generation device according to claim 13 or 14, wherein

the interpolation frame generation unit ~~changes the~~is operable to change a number of image blocks that form an image frame in which the motion vectors are detected in accordance with a decision of the generation process ability decision unit.

16. (Currently Amended) The interpolation frame generation device according to claim 13~~, 14 or 15~~, wherein

the interpolation frame generation unit ~~changes~~ is operable to change a range in which a motion vector of an image block that forms an image frame is detected in accordance with a decision of the generation process ability decision unit.

17. (Currently Amended) The interpolation frame generation device according to ~~any one of claims 13-16~~claim 13, wherein

the generation process ability decision unit ~~decides~~ is operable to decide an attribution of an image signal made of the image frame.

18. (Withdrawn – Currently Amended) An interpolation frame generation device for generating an interpolation frame for interpolating image frames, the device comprising:

a motion vector detection unit operable to detect at least a motion vector of an image block that forms an image frame via a motion detecting unit of a coding device for motion

compensation coding; and

an interpolation frame generation unit operable to generate the interpolation frame in accordance with the motion vector.

19. (Withdrawn – Currently Amended) The interpolation frame generation device according to claim 18, further comprising

an operating state decision unit operable to decide an operating state of the motion detecting unit of the coding device~~;~~, wherein

the interpolation frame generation unit ~~generates~~ is operable to generate the interpolation frame in accordance with ~~the~~ a decided operating state.

20. (Withdrawn – Currently Amended) The interpolation frame generation device according to claim 19, wherein

the interpolation frame generation unit ~~does not~~is not operable to generate the interpolation frame when the operating state decision unit decides that the motion detecting unit of the coding device is operating.

21. (Withdrawn – Currently Amended) The interpolation frame generation device according to claim 19 or 20, wherein

the interpolation frame generation unit ~~generates~~ is operable to generate the interpolation frame in accordance with motion compensation vectors of coded blocks that are obtained by decoding the image frames when the operating state decision unit decides that the motion detecting unit of the coding device is operating.

22. (Currently Amended) An interpolation frame generation device for generating an interpolation frame for interpolating image frames, the device comprising:

a motion vector detection unit operable to detect motion vectors by utilizing a plurality of first image frames that are located either before or after the interpolation frame in the display order; and

an interpolation frame generation unit operable to generate the interpolation frame in

accordance with the motion vectors, wherein the interpolation frame generation unit is operable to generate the interpolation frame for an image block that is not included in one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally further from the interpolation frame than the one image frame.

23. (Currently Amended) The interpolation frame generation device according to claim 22, wherein

the plurality of first image frames are located on one side of the interpolation frame in the display order and include a plurality of base frames that serve as bases for detecting the motion vectors;

one or a plurality of second image frames are located on another side of the interpolation frame in the display order and include a reference frame that serves as an object for detecting the motion vectors; and

the motion vector detection unit ~~detects~~ is operable to detect the motion vectors between the base frames and the reference frame.

24. (Currently Amended) The interpolation frame generation device according to claim 22, wherein

the plurality of first image frames are located on one side of the interpolation frame in the display order and include a plurality of reference frames that serve as references for detecting the motion vectors;

one or a plurality of second image frames are located on another side of the interpolation frame in the display order and include a base frame that serves as a base for detecting the motion vectors; and

the motion vector detection unit ~~detects~~ is operable to detect the motion vectors between the base frame and the reference frames.

25. (Currently Amended) The interpolation frame generation device according to claim 22, wherein

the plurality of first image frames includes a base frame that serves as a base for detecting the motion vectors and a reference frame that serves as an object for detecting the motion vectors; and

the motion vector detection unit ~~detects~~ is operable to detect the motion vectors between the base frame and the reference frame.

26. (Currently Amended) The interpolation frame generation device according to claim 22, wherein

the motion vector detection unit ~~detects~~ is operable to detect a first motion vector between a first base frame that serves as a base for detecting the first motion vector and a first reference frame that is located before the first base frame in the display order, and ~~detects~~ is operable to detect a second motion vector between a second base frame that serves as a base for detecting the second motion vector and a second reference frame that is located after the second base frame in the display order, and

the interpolation frame generation unit ~~can~~ is operable to generate the interpolation frame in accordance with the first motion vector and the second motion vector.

27. (Original) The interpolation frame generation device according to claim 22, wherein

the motion vectors include a motion vector for generating an interpolation block that forms the interpolation frame, and is detected from a base pixel area that forms a base frame that serves as a base for detecting the motion vector and a reference pixel area that forms a reference frame that serves as an object for detecting the motion vector, and

the position of the reference pixel area in the reference frame is defined as a position indicated by a vector that is obtained by internal division or external division of the vector that is connected between the position of the base pixel area in the base frame and the position of the interpolation block in the interpolation frame.

28. (Withdrawn – Currently Amended) An interpolation frame generation device for generating an interpolation frame for interpolating image frames, the device comprising:

an area determination unit operable to determine an interpolation inadequate area that is

not adequate for generating the interpolation frame in an outer frame area of an image frame; and

an interpolation frame generation unit operable to generate the interpolation frame in accordance with movement associated information about movements of image blocks that form the image frame and operable to perform a special area compensation process for the decided interpolation inadequate area ~~so as~~ to generate the interpolation frame.

29. (Withdrawn) The interpolation frame generation device according to claim 28, wherein

the interpolation inadequate area is an area having substantially a constant pixel value in the outer frame area.

30. (Withdrawn) The interpolation frame generation device according to claim 28, wherein

the interpolation inadequate area is a predetermined area for an image size of the image frame.

31. (Withdrawn – Currently Amended) The interpolation frame generation device according to claim 28, wherein

the area determination unit ~~determines~~ is operable to determine the interpolation inadequate area in accordance with obtained interpolation inadequate area information that indicates the interpolation inadequate area.

32. (Withdrawn) The interpolation frame generation device according to claim 31, wherein

the interpolation inadequate area information includes a display size of a display device for displaying an image signal made of a plurality of the image frames and a memory size of a memory for a display of the display device.

33. (Currently Amended) An interpolation frame generation method for generating an interpolation frame for interpolating image frames that are obtained by decoding a coded image signal that is coded by motion compensation, the method comprising:

~~an image signal information acquisition step for~~ acquiring image signal information of the coded image signal;

~~a motion vector detection step for~~ partially selecting at least an image block among the entire image blocks that form a base frame and ~~for~~ detecting a motion vector of the partially selected image block between the base frame and a reference frame; and

~~an interpolation frame generation step for~~ generating the interpolation frame in accordance with the image signal information and the motion vector, and generating the interpolation frame for an image block that is not included in one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally further from the interpolation frame than the one image frame.

34. (Withdrawn – Currently Amended) An interpolation frame generation method for generating an interpolation frame for interpolating image frames, the method comprising:

~~a movement associated information acquisition step for~~ acquiring movement associated information about movements of image blocks that form an image frame;

~~an interpolation vector derivation step for~~ deriving a global motion vector for generating an interpolation frame in accordance with the movement associated information; and

~~an interpolation frame generation step for~~ generating the interpolation frame in accordance with the global motion vector.

35. (Withdrawn – Currently Amended) An interpolation frame generation method for generating an interpolation frame for interpolating image frames, the method comprising:

~~a movement associated information acquisition step for~~ acquiring movement associated information about movements of image blocks that form an image frame;

~~an image frame decision step for~~ deciding whether or not the image frame is adequate for generating the interpolation frame; and

~~an interpolation frame generation step for~~ generating the interpolation frame in accordance with the movement associated information by switching a method of generating the interpolation frame in accordance with the decision.

36. (Currently Amended) An interpolation frame generation method for generating an

interpolation frame for interpolating image frames, the method comprising:

~~the generation process ability decision step for~~ deciding the generation process ability for generating the interpolation frame; and

~~an interpolation frame generation step for~~ generating the interpolation frame in accordance with a decision ~~in~~ from said deciding the generation process ability ~~decision step~~, wherein said generating the interpolation frame generates the interpolation frame for an image block that is not included in one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally further from the interpolation frame than the one image frame.

37. (Withdrawn – Currently Amended) An interpolation frame generation method for generating an interpolation frame for interpolating image frames, the method comprising:

~~a motion vector detection step for~~ detecting at least a motion vector of an image block that forms an image frame via a motion detecting unit of a coding device for motion compensation coding; and

~~an interpolation frame generation step for~~ generating the interpolation frame in accordance with the motion vector.

38. (Currently Amended) An interpolation frame generation method for generating an interpolation frame for interpolating image frames, the method comprising:

~~a motion vector detection step for~~ detecting motion vectors by utilizing a plurality of first image frames that are located either before or after the interpolation frame in the display order; and

~~an interpolation frame generation step for~~ generating the interpolation frame in accordance with the motion vectors, wherein said generating the interpolation frame generates the interpolation frame for an image block that is not included in one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally further from the interpolation frame than the one image frame.

39. (Withdrawn – Currently Amended) An interpolation frame generation method for generating an interpolation frame for interpolating image frames, the method comprising:

~~an area determination step for~~ determining an interpolation inadequate area that is an outer frame area of an image frame and is not adequate for generating the interpolation frame; and

~~an interpolation frame generation step for~~ generating the interpolation frame in accordance with movement associated information about movements of image blocks that form the image frame and ~~for~~ performing a special area compensation process for the ~~decided~~ determined interpolation inadequate area so as to generate the interpolation frame.

40. (Currently Amended) An interpolation frame generation computer program recorded on a computer-readable recording medium for performing an interpolation frame generation method for generating an interpolation frame for interpolating image frames that are obtained by decoding a coded image signal that is coded by motion compensation by using a computer,

the interpolation frame generation program ~~making~~ for causing the computer to execute the interpolation frame generation method comprising:

~~an image signal information acquisition step for~~ acquiring image signal information of the coded image signal;

~~a motion vector detection step for~~ partially selecting at least an image block among the entire image blocks that form a base frame and for detecting a motion vector of the partially selected image block between the base frame and a reference frame; and

~~an interpolation frame generation step for~~ generating the interpolation frame in accordance with the image signal information and the motion vector, wherein said generating the interpolation frame generates the interpolation frame for an image block that is not included in one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally further from the interpolation frame than the one image frame.

41. (Withdrawn –Currently Amended) An interpolation frame generation computer program recorded on a computer-readable recording medium for performing an interpolation frame

generation method for generating an interpolation frame for interpolating image frames by using a computer,

the interpolation frame generation program ~~making~~ for causing the computer to execute the interpolation frame generation method comprising:

~~a movement associated information acquisition step for~~ acquiring movement associated information about movements of image blocks that form an image frame;

~~an interpolation vector derivation step for~~ deriving a global motion vector for generating an interpolation frame in accordance with the movement associated information; and

~~an interpolation frame generation step for~~ generating the interpolation frame in accordance with the global motion vector.

42. (Withdrawn – Currently Amended) An interpolation frame generation computer program recorded on a computer-readable recording medium for performing an interpolation frame generation method for generating an interpolation frame for interpolating image frames by using a computer,

the interpolation frame generation program ~~making~~ for causing the computer to execute the interpolation frame generation method comprising:

~~a movement associated information acquisition step for~~ acquiring movement associated information about movements of image blocks that form an image frame;

~~an image frame decision step for~~ deciding whether or not the image frame is adequate for generating the interpolation frame; and

~~an interpolation frame generation step for~~ generating the interpolation frame in accordance with the movement associated information by switching a method of generating the interpolation frame in accordance with the decision.

43. (Currently Amended) An interpolation frame generation computer program recorded on a computer-readable recording medium for performing an interpolation frame generation method for generating an interpolation frame for interpolating image frames by using a computer,

the interpolation frame generation program ~~making~~ for causing the computer to execute the interpolation frame generation method comprising:

~~generation process ability decision step for~~ deciding generation process ability for generating the interpolation frame; and

~~an interpolation frame generation step for~~ generating the interpolation frame in accordance with a decision in ~~the~~ said deciding generation process ability ~~decision step~~, wherein said generating the interpolation frame generates the interpolation frame for an image block that is not included in one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally further from the interpolation frame than the one image frame.

44. (Withdrawn – Currently Amended) An interpolation frame generation computer program recorded on a computer-readable recording medium for performing an interpolation frame generation method for generating an interpolation frame for interpolating image frames by using a computer,

the interpolation frame generation program ~~making~~ for causing the computer to execute the interpolation frame generation method comprising:

~~a motion vector detection step for~~ detecting at least a motion vector of an image block that forms an image frame via a motion detecting unit of a coding device for motion compensation coding; and

~~an interpolation frame generation step for~~ generating the interpolation frame in accordance with the motion vector.

45. (Currently Amended) An interpolation frame generation computer program recorded on a computer-readable recording medium for performing an interpolation frame generation method for generating an interpolation frame for interpolating image frames by using a computer,

the interpolation frame generation program ~~making~~ for causing the computer to execute the interpolation frame generation method comprising:

~~a motion vector detection step for~~ detecting motion vectors by utilizing a plurality of first image frames that are located either before or after the interpolation frame in the display order; and

~~an interpolation frame generation step for~~ generating the interpolation frame in

accordance with the motion vectors, wherein said generating the interpolation frame generates the interpolation frame for an image block that is not included in one image frame located sequentially after the interpolation frame in a display order, based upon a motion vector detected by using an image frame that is located temporally further from the interpolation frame than the one image frame.

46. (Withdrawn – Currently Amended) An interpolation frame generation computer program recorded on a computer-readable recording medium for performing an interpolation frame generation method for generating an interpolation frame for interpolating image frames by using a computer,

the interpolation frame generation program ~~making~~ for causing the computer to execute the interpolation frame generation method comprising:

~~an area determination step for~~ determining an interpolation inadequate area that is an outer frame area of an image frame and is not adequate for generating the interpolation frame; and

~~an interpolation frame generation step for~~ generating the interpolation frame in accordance with movement associated information about movements of image blocks that form the image frame and ~~for~~ performing a special area compensation process for the decided interpolation inadequate area so as to generate the interpolation frame.

47. (New) The interpolation frame generation device according to claim 1, wherein the motion vector is detected for a reference frame that is in a same scene as a base frame.

48. (New) The interpolation frame generation device according to claim 1, wherein the motion vector is corrected by a smoothing filter.

49. (New) The interpolation frame generation device according to claim 2, wherein the motion vector is detected for the reference frame that is in a same scene as the base frame.

50. (New) The interpolation frame generation device according to claim 2, wherein the motion

vector is corrected by a smoothing filter.

51. (New) The interpolation frame generation device according to claim 27, wherein the motion vector is detected for the reference frame that is in a same scene as the base frame.

52. (New) The interpolation frame generation device according to claim 27, wherein the motion vector is corrected by a smoothing filter.